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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,451	12/22/2005	Piero Iacopetti	6097P064	3918

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

Office Action Summary	Application No. 10/532,451	Applicant(s) IACOPETTI, PIERO	
	Examiner Christopher Verdier	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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Receipt and entry of Applicant's Preliminary Amendment dated April 21, 2005 is acknowledged.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the external casing (claim 1, line 5), and the grooves and pins (claim 8, line 4) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The abstract of the disclosure is objected to because it does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because it is replete with grammatical errors too numerous to mention in all instances. The following are several examples of defects. The specification should be proofread for additional defects. Appropriate correction is required.

On page 1, line 5, -- an -- should be inserted after “of”.

On page 1, line 5, -- a -- should be inserted after “and”.

On page 4, line 18, -- an -- should be inserted after “of”.

On page 4, line 27, -- the -- should be inserted after “between”.

On page 5, line 11, the reference to claim 1 is objectionable and should be deleted.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 11, which recites that the first holes have an approximate diameter of 1.8 mm, has no antecedent basis in the specification for the underlined term.

Claim Objections

Claims 1-12 are objected to because of the following informalities: Appropriate correction is required.

In claim 1, line 1, "Improved" should be changed to -- An improved --.

In claim 1, line 1, -- an -- should be inserted after "of".

In claim 1, line 2, -- a -- should be inserted after "and".

In claim 2, line 3, "internally a" should be changed to -- an internal --.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-12 are inaccurate, in that claim 1, line 1 uses the closed language "consisting of", which limits the claims to the assembly consisting of the internal casing and the support device for nozzles. However, as seen in figure 2 and as disclosed in the specification, the assembly clearly contains other elements such as the anti-rotation pin 120, the unnumbered bolts in figure 2, and the cooling inserts 118. Note MPEP 2111.02 which states that the transitional phrase "consisting of" excludes any element, step, or ingredient not specified in the claim. In re Gray, 53 F.2d 520, 11 USPQ 255 (CCPA 1931); Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948). It is suggested that in claim 1, line 1, "consisting of" be changed to --

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comprising --. Claims 3 and 4 are unclear in that they recite "said support devices", however claim 1 from which these claims depend only recites a single support device. In claims 3 and 4, line 2, the recitation of the cooling inserts is inaccurate in view of the claim language in claim 1, line 1 of "consisting" of, for the reason above. In claim 5, line 2, the recitation of the anti-rotation pin is inaccurate in view of the claim language in claim 1, line 1 of "consisting" of, for the reason above. In claims 7 and 8, line 2, which recites "said support devices" is unclear, because claim 1 from which these claims depend only recites a single support device. In claim 8, line 4, "grooves and pins" is inaccurate in view of the claim language in claim 1, line 1 of "consisting" of, for the reason above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 and 12, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Liotta 5,993,150 in view of Applicant's Prior Art Figure 1. Liotta discloses an improved assembly substantially as claimed, including an internal casing 34 and a support device 30 in a gas turbine stage, with nozzles 20b grouped together in sectors, and an external casing 36, with the support device being kept in position by the internal casing, there also being formed first circumferential cooling holes 38d on the internal casing and

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second cooling holes 38a, 40b on the support device, characterized in that the first cooling holes of the internal casing have an extension substantially parallel to the axis of the gas turbine. The support device has an internal cooling recess 40f, and cooling inserts 42 are provided in the support devices 30, with the cooling inserts being brazed along an external diameter of the support devices (column 4, lines 14-19). An unnumbered anti-rotation pin connected to the outer shroud of nozzles 20b is provided which is located substantially at the front of the support device (which acts as an anti-rotation pin for an unnumbered seal). A contact surface (at the end of 32b) supporting an axial thrust exists between the internal casing 34 and the support device 30. The support devices are grouped together in sectors. The second cooling holes 40b are arranged at the rear of the support device. The stage is the first high pressure stage of a gas turbine engine 10.

However, Liotta does not disclose that each of the nozzle sectors are connected externally to the external casing of the gas turbine by means of the support device (claim 1), and does not disclose that the support devices are kept in position by the internal casing by means of grooves and pins and interlocking joints with the nozzles (claim 8).

Applicant's Prior Art Figure 1 (and the specification on page 6, lines 11-20) shows an assembly for nozzles in a gas turbine having unnumbered nozzle sectors which are connected externally to an unnumbered external casing of the gas turbine by means of support devices 14, with the support devices being kept in position by an internal casing 12 by means of unnumbered

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grooves and unnumbered pins and interlocking joints 16 with the nozzles, for the purposes of providing additional support for the nozzles and preventing the support devices from moving.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the assembly of Liotta such that each of the nozzle sectors are connected externally to the external casing of the gas turbine by means of the support device, and such that the support devices are kept in position by the internal casing by means of grooves and pins and interlocking joints with the nozzles, as taught by Applicant's Prior Art Figure 1, for the purposes of providing additional support for the nozzles and preventing the support devices from moving.

Claims 10-11, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Liotta 5,993,150 and Applicant's Prior Art Figure 1 as applied to claim 1 above. The modified assembly of Liotta shows all of the claimed subject matter except for there being forty-two first cooling holes (claim 10), and except for the first cooling holes having an approximate diameter of 1.8 mm (claim 11).

The number of first cooling holes 38d and the diameter of the first cooling holes 38d is a result-effective variable which directly influences the amount and rate of cooling fluid flow as well as the cooling effect on the support devices 30. It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to select the number of first cooling holes as well as the diameter of the first cooling holes in the modified assembly of

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Liotta such that they are specific values, such as forty-two first cooling holes and such as a diameter of approximately 1.8 mm, for the purpose of optimizing the amount and rate of cooling fluid flow as well as the cooling effect on the support devices, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Riedmiller, Brown, Smuland, and Eckert are cited to show cooled shrouds with brazed impingement plates.

Thompson and Proctor are cited to show turbine shrouds with anti-rotation pins.

Sifford, Nichols, and Pask are cited to show cooled turbine shrouds with first cooling holes in an internal casing.

Laurello is cited to show a cooled turbine shroud with downstream orifices.

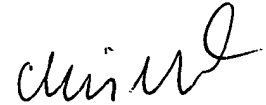
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
April 12, 2006



Christopher Verdier
Primary Examiner
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